Accessing Suomi NPP OMPS Products through the GES DISC Online Data Services

NASA/Goddard Earth Sciences Data and Information Services Center (GES DISC)

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https://disc.gsfc.nasa.gov

Overview

The NASA Goddard Earth Sciences Data and Information Services Center (GES DISC) is the primary archive of the latest versions of atmospheric composition data from the Ozone Mapping Profiler Suite (OMPS) mission on the Suomi National Polar-orbiting Partnership (NPP) satellite.

OMPS consists of three spectrometers: a Nadir Mapper (300-420 nm) with 50×50 km^2 resolution at nadir and 2600 km wide swath, a Nadir Profiler (250-310 nm) with 250×250 km^2 footprint, and a three-slit Limb Profiler (290-1000 nm) making 3 vertical profiles spaced about 250 km apart with 1-2 km vertical resolution from the surface up to ~100 km altitude. OMPS measures primarily ozone, both total column and vertical profiles, but also includes measurements of NO_2 and SO_2 total and tropospheric columns, as well as aerosol extinction profiles. Also available are the Level-1B calibrated and geolocated radiances. All data products are generated at the OMPS Science Investigator Processing System (SIPS) at NASA/GSFC.
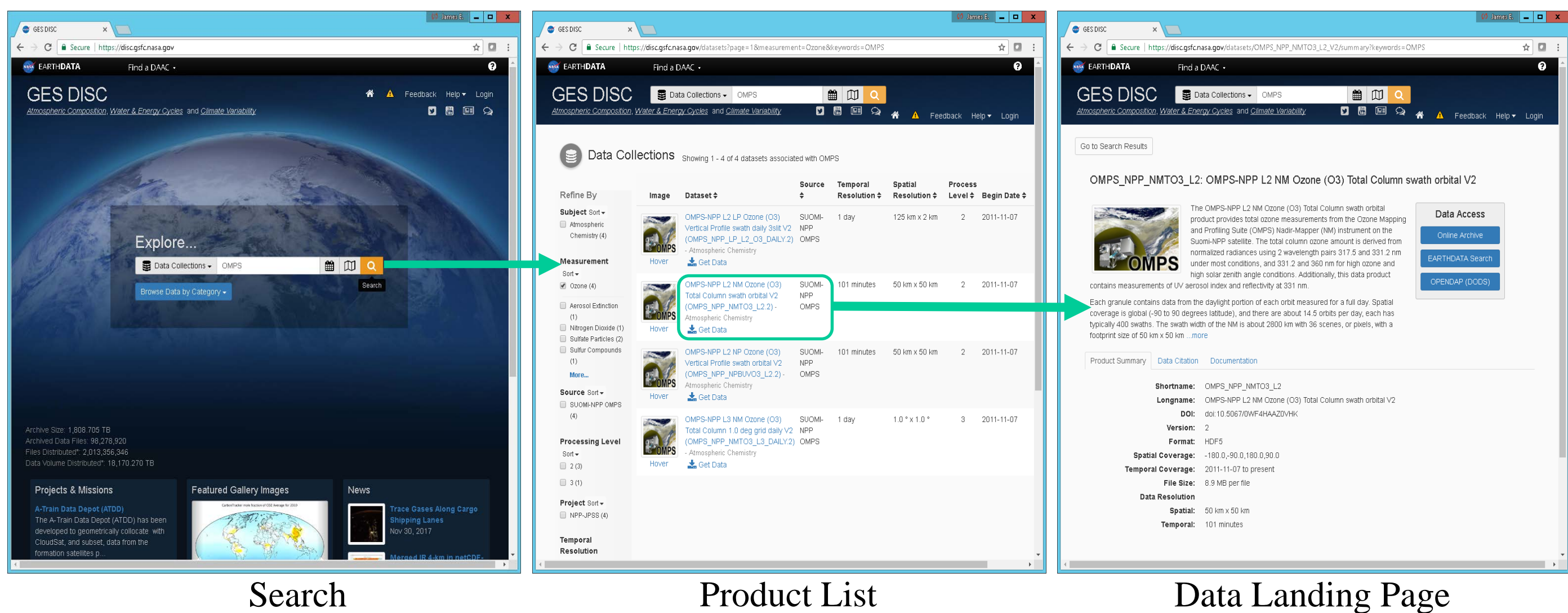
This presentation will provide an overview of the OMPS products available at the GES DISC archive, as well as demonstrate the various data services provided by the GES DISC. Since TOMS, SBUV, and EOS Aura (OMI, MLS, HIRDLS) data products are also available from the GES DISC archive, these can be easily accessed and compared with the OMPS data.

Please note that all users must now register first before being able to download data. As always, data are free for all users!

Finding the Data

OMPS data are archived at the GES DISC at https://disc.gsfc.nasa.gov. Typing "OMPS" into the keyword search field will bring up a list of all "OMPS" related products. The list can be refined by time range, spatial region, or with various facets, such as measurement.

Each product has a landing page with a summary describing the product, along with links to access the data and documentation. Online services, such as subsetting, are listed under Data Access when available.

Search

Product List

Data Landing Page

Exploration and Visualization

OMPS level-3 gridded data can be explored and visualized using the online GES DISC Giovanni tool. Users can use Giovanni to make maps, animations, time-series, and comparison plots with other data sets.

A new GES DISC online L2 visualization tool (see talk IN24B-06 "Challenges in Visualizing Satellite Level 2 Atmospheric Data with GIS Approach") will allow users in the future to quickly view the OMPS level-2 data.

Map Average SH for October | Time Series <60ºS Fall (SON)

2013
2014
2015
2016
2017

Data Products

All OMPS products are written using the HDF5 file format, and include both Climate Forecast (CF) and Attributes Convention for Data Discovery (ACDD) metadata. CF metadata improves data interoperability.
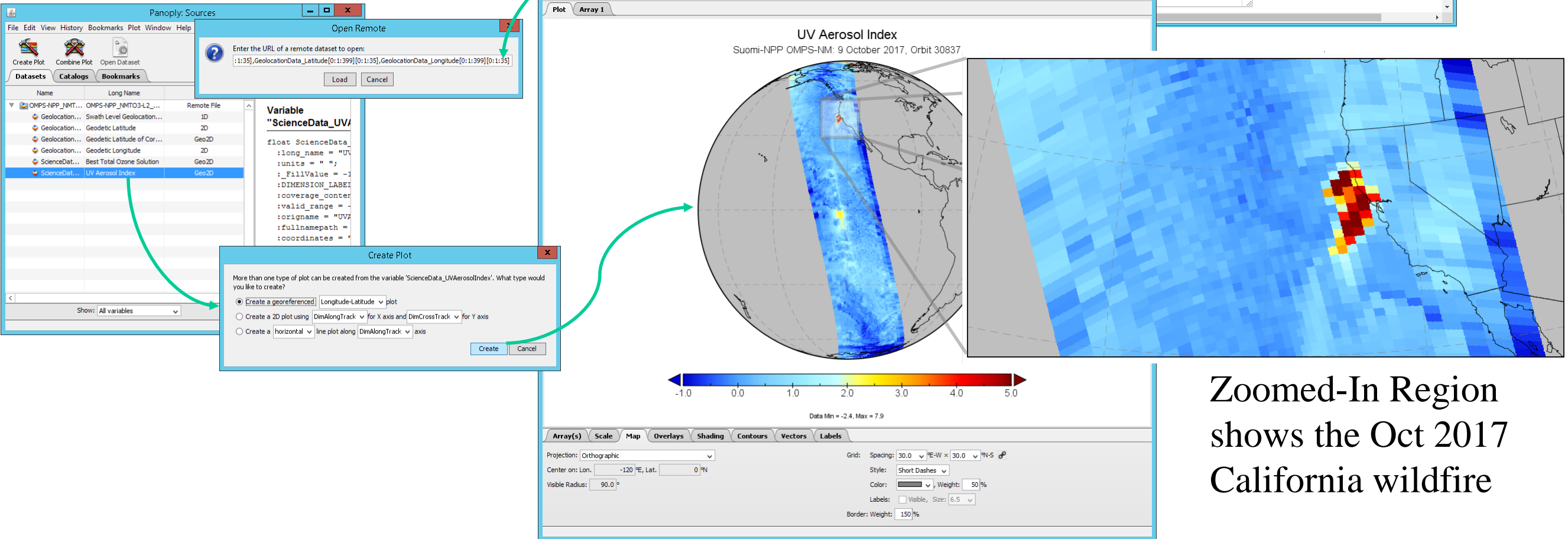
	Data Product	Processing Level	Date Coverage	File Granularity
Nadir Mapper	OMPS-NPP L3 NM Ozone (O3) Total Column 1.0 deg grid daily	3	2012-01-26 onwards	Daily
	OMPS-NPP L2 NM Ozone (O3) Total Column swath orbital	2	2011-11-13 onwards	Orbit
	OMPS-NPP L2 NM Nitrogen Dioxide (NO2) Total and Tropospheric Column swath orbital	2	2012-01-26 onwards	Orbit
	OMPS-NPP L2 NM Sulfur Dioxide (SO2) Total and Tropospheric Column swath orbital	2	2012-01-26 onwards	Orbit
	OMPS-NPP L1B NM Radiance EV Calibrated Geolocated swath orbital	1B	2011-11-13 onwards	Orbit
Nadir Profiler	OMPS-NPP L2 NP Ozone (O3) Vertical Profile swath orbital	2	2011-11-13 onwards	Orbit
	OMPS-NPP L1B NP Radiance EV Calibrated Geolocated swath orbital	1B	2011-11-13 onwards	Orbit
Limb Profiler	OMPS-NPP L2 LP Ozone (O3) Vertical Profile swath daily 3slit	2	2012-02-07 onwards	Daily
	OMPS-NPP L2 LP Aerosol Extinction Vertical Profile swath daily 3slit	2	2012-02-07 onwards	Daily
	OMPS-NPP L1G LP Radiance EV Wavelength-Altitude Grid swath orbital 3slit	1B	Coming soon	Orbit

Access Data Remotely

The OPeNDAP protocol allows one to bring data directly into an application, such as IDL, Matlab, Panoply or IDV, without actually downloading the file to a computer first.

Select variables and copy the data URL into the application.

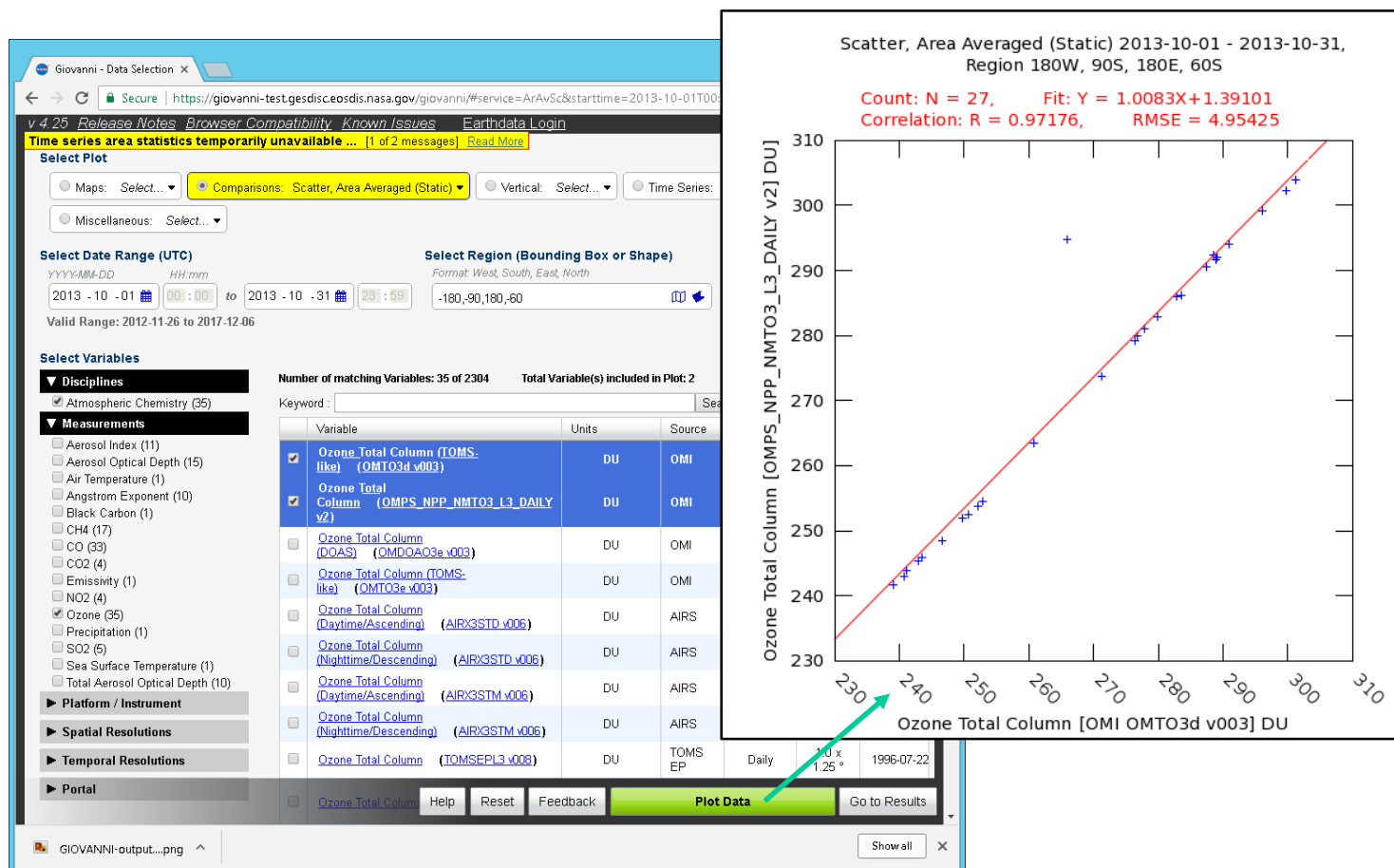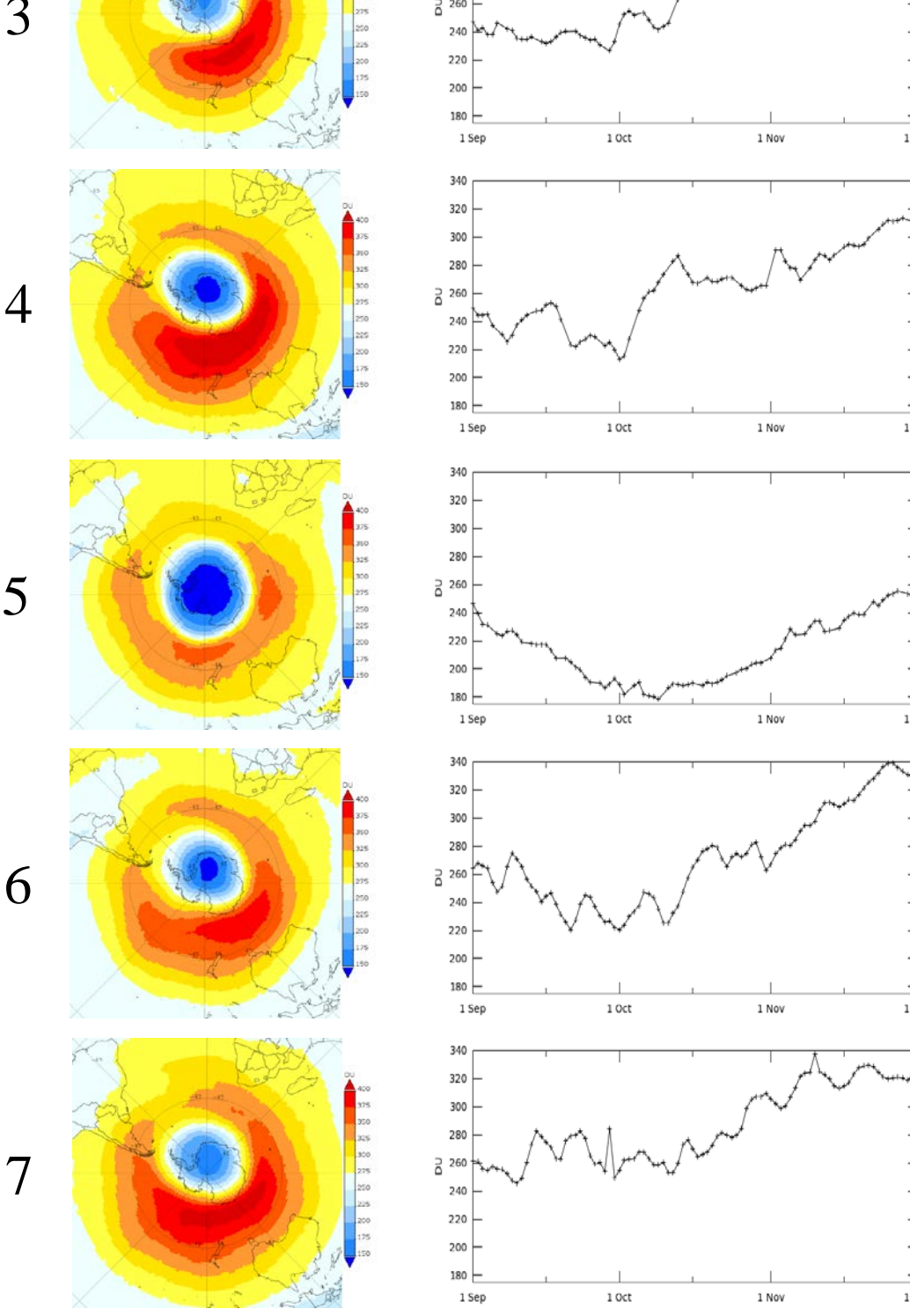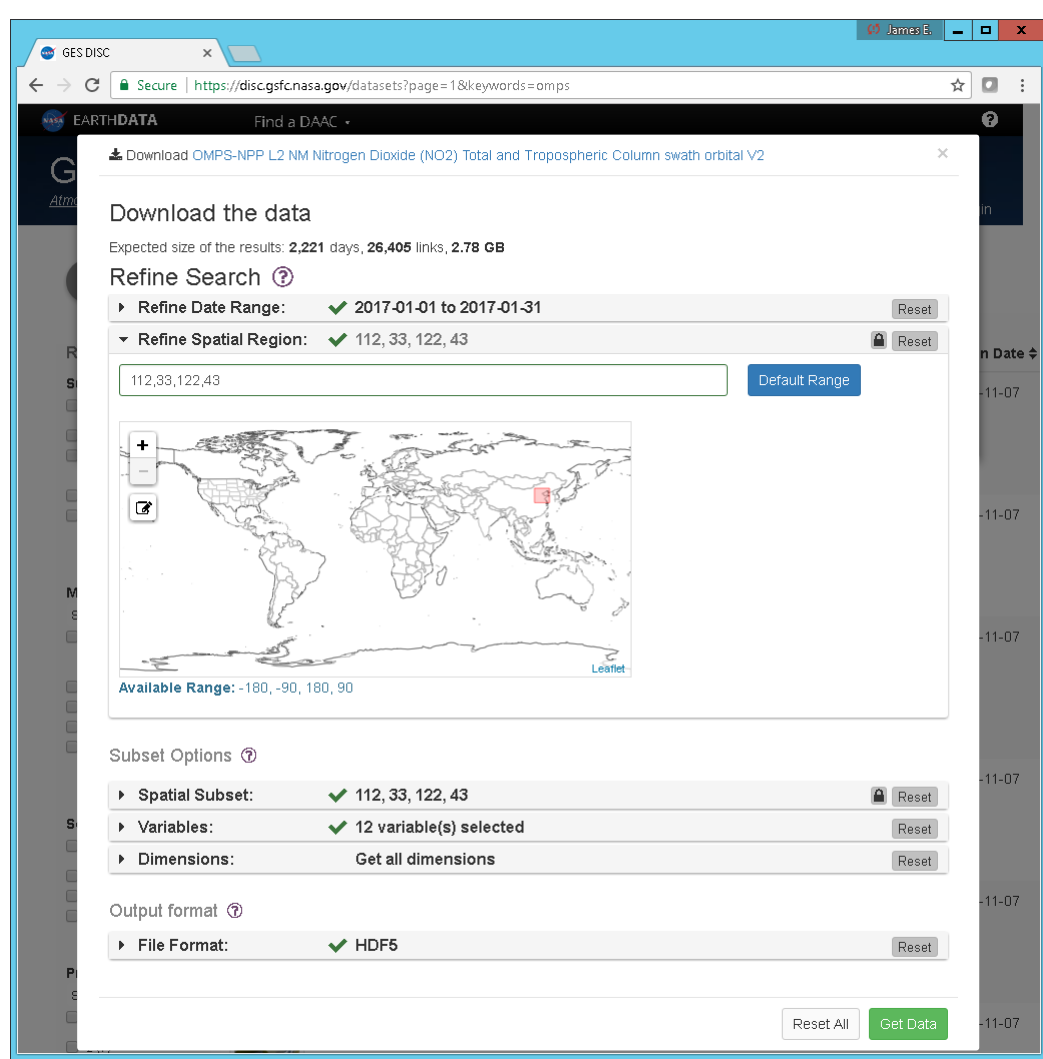OPeNDAP also supports a catalog feature for loading in data stored in multiple files.

Zoomed-In Region shows the Oct 2017 California wildfire

Data Subsetting

A new on-the-fly set of subsetters are being developed by the GES DISC. These will allow users to subset the data files spatially (bounding box, region/shapefile, or distance from a point), by set of variables, or by dimension (i.e. certain wavelength bands, pressure levels, etc.). The subsetter is being implemented for the Aura OMI Level 2 data, and in the future will be extended to support the OMPS data products. For more information please see poster IN41B-0038 "Complexities in Subsetting Satellite Level 2 Data"

Subsetting Interface

Original full orbit swath file passing over Beijing, China

Swath subset covering the 10º×10º bounding box over Beijing, China

Only the pixels within the 10º×10º bounding box over Beijing, China